Editorial

Indian Journal of Anaesthesia and Analgesia
Volume 4 Number 2, April - June 2017 (Part–1)

Coming out of our Comfort Zone

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Introduction

Conventionally, anesthesiologists practice as perioperative physician, providing preoperative, intraoperative and postoperative care to their surgical patients. Though primarily they focus on providing anaesthesia to their surgical patients, they usually function as a perioperative physician providing 'non-operative care' to them [1]. With the skills they have acquired in this, along with the technological advancements, their service is no longer confined to the operating rooms. Emerging requirements away from our routine comfort zone of operating suites has posed new challenges to the specialty.

Perioperative Physician is a qualified medical person competent to address the requirement of surgical patients with regard to the decision to operate till they are discharged safe after the procedure. Among the multiple specialists involved in this, anaesthesiologists are best suited to lead them due to their skills, training and experience in this field. A sensible anesthesiologist can reduce the requests for unnecessary consultations and unexpected surgical cancellations due to inadequate preoperative preparation [2].

Postanesthesia Care Unit (PACU) or the "Recovery room" is an extension of the operating room, where patients are immediately cared for after the procedure, till their vitals are stable. Here, patients continue to emerge from the effects of anaesthesia under close monitoring of trained staff under direct supervision of the anaesthesiologist. Patients may go unconscious due to continued effects of the anaesthetic drugs or inadequate recovery. Prevention of hypoxia, treatment of complications, securing airway and maintainance of cardiovascular and fluid status with adequate pain control are the primary concerns in PACU. Epidural catheters used intraoperatively may be left in place to provide postoperative pain control and invasive monitoring lines inserted may have to be used for continued monitoring, which has to be taken care for. The anaesthesiologist decides the adequacy of recovery to be shifted to the postoperative area, intensive care unit (ICU) or to be discharged after day care procedure depending upon the patient condition. Recovery and discharge from PACU require adequate activity level, respiration, circulation, consciousness, and oxygen saturation [3], which are often assessed by scoring systems like Modified Aldrete Score [4].

Intensive Care Unit (ICU)

Anesthesiologists can easily coordinate the ICU management due to their knowledge and experience in clinical physiology, pharmacology and resuscitation protocols and the professional relation with the various medical specialists involved in patient care. The expertise in cardiorespiratory care, non invasive and invasive monitoring skills and airway management are of paramount importance in the ICU. Moreover he can provide sedation or anaesthesia for diagnostic and therapeutic procedures in the ICU. However, it is advisable to do surgical procedures in the operating theatre whenever possible, especially those involving airways and risk of haemorrhage. Transporting the critically ill patient from ICU for investigations and procedures and shifting the patient from one hospital to other in case of emergency needs expert supervision.

Emergency and Trauma Care

The skill acquired in airway management, cardiopulmonary resuscitation, and pain control makes the anesthesiologist to take the lead role in emergency management and trauma resuscitation. They have an active role in providing pain relief for initial stabilization and preparing for emergency interventions and surgical procedures.

Acute Airway Obstruction

Due to their expertise, anaesthesiologists are often

called for resuscitating life-threatening airway obstructions. Common conditions are foreign body aspiration, airway trauma, allergic or anaphylactic reactions, smoke inhalation, acute intravenous fluid overload and bacterial infections (peritonsillar or retropharyngeal abcess).

Basic Airway Management is used in first aid since it is non invasive, simple and does not need equipments. Skill acquired by the anaesthesiologist from his day to day practice is of immense help in critical airway management. These include procedures aiming at removing foreign bodies from the airways by abdominal thrusts (*Heimlich maneuver*), for maintaining clear airway such as head-tilt/chin-lift and jaw-thrust maneuvers and placing the victim in *recovery position* (lateral recumbent or three-quarters prone position) to allow the drainage of fluids out of the mouth by gravity.

Advanced airway management requires the use of airways, supraglottic devices, endotracheal intubation and surgical methods like cricothyrotomy and tracheostomy. Foreign objects in the throat can be removed by suction or with Magill forceps under inspection of the airway with a laryngoscope. Oropharyngeal airways prevent the patient's tongue obstructing the airway. It should not be used in a conscious patient as it can cause vomiting and aspiration by stimulating the gag reflex. A nasopharyngeal airway may be used if the jaw is clenched or the patient is semiconscious and cannot tolerate an oropharyngeal airway. It is not recommended if there is suspicion of basal skull fracture or hemmorhagic disorder.

Supraglottic airways (e.g. Laryngeal Mask Airway) are inserted through the mouth to sit on top of the larynx. Compared to cuffed endotracheal tube they give less protection against aspiration but are easier to insert and cause less laryngeal trauma. Proseal LMA has oesophageal access port, so that a tube can be inserted to decompress the stomach. The Fastrach LMA device can be used to pass endotracheal tube through it into the trachea, for a better airway seal. Endotracheal intubation however is the gold standard for securing and maintaining a safe airway in the expert hands of an anaesthesiologist.

Surgical methods for airway management *(Cricothyrotomy and Tracheostomy)* are often performed as a last resort where endotracheal intubation is impossible or contraindicated.

Cardiopumonary Resuscitation

As anaesthesiologists frequently get involved in resuscitation procedures in the operating rooms and emergency department, they are often involved in the resuscitation of collapsed victims. His updated knowledge and skills in this field can save valuable lives and he is often involved in teaching these skills.

Anaesthesia outside the Operating Room

Advances in medical technology has made several diagnostic and therapeutic procedures done outside the traditional operating suites. Non operating room anesthesia (NORA) refers to administration of sedation or anesthesia outside the operating room to patients undergoing painful or uncomfortable procedures [5]. These include radiological imaging, gastrointestinal endoscopy, placement of pacemakers and defibrillators, lithotripsy and electroconvulsive therapy. Most of these procedures are for children and confused patients, who cannot cooperate with these uncomfortable and prolonged procedures. Reason for the procedure and underlying medical conditions should be assessed and optimized. Necessary drugs and equipment for sedation, anaesthesia and resuscitation should be checked before the procedure. These include tilting operating table, working suction, constant oxygen source, defibrillator and standard anaesthesia machine. Special equipment may be necessary for procedures like magnetic resonance imaging (MRI).

The American Society of Anesthesiology (ASA) has provided guidelines for non operating room anesthesia to improve the quality of patient care [6]. The anesthesiologist must understand the nature of the procedure, including the position of the patient, how painful the procedure will be, and how long it will last. A reliable venous access must be established. Observing the response to verbal commands should be routine, except in those unable to respond. Continuous monitoring must include pulse oximetry, ECG and blood pressure. Precautions for radiation hazards to the personnel must be ensured. Adequate illumination and working space in case of an unexpected event should be ensured. Person with advanced life support skills should be immediately available for sedation and in case of a mishap, further assistance must be available. Personal communication with the operating person regarding positioning, duration and nature of the procedure will be helpful in proper planning. After the procedure, patient should be observed in a properly staffed and equipped area until they are free of risk for cardio-respiratory depression or aspiration.

Anaesthesia in Non-Hospital Setting

Administering anaesthesia away from hospital may be required in situations of rescuing entrapped people at accident sites and natural calamities. Portable oxygen source and anesthesia machine with drugs and devices like propofol, ketamine and Laryngeal masks may be useful in these situations.

Outpatient (Ambulatory) Anaesthesia

This includes dental, cosmetic and pregnancy termination clinics and other minor outpatient procedures. Facilities for resuscitation, reliable attendant and safety criteria for discharge after the outpatient anaesthesia must be ensured. Fasting status and instructions regarding concomitant medications of the patient must be taken care of. Drugs like propofol, fentanyl and sevoflurane, techniques like spontaneous breathing and use of supraglottic devices like LMA, regional anaesthetic techniques like caudal epidural and Bier's block are chosen. Proper selection of patient (ASA status I, II), procedures (minor procedures, not involving body cavity) and anaesthetic techniques are the key to safe discharge after the procedure.

Anaesthesia in War and Catastrophies

Development of war anaesthesia is traced from the first war anaesthesia in 1847[7]. Ether was the main anaesthetic used at the war sites. After the Second World War, this was replaced by Ketamine, due to its intense analgesia and ease of administration by intramuscular route. The development of light weight portable anesthesia apparatus and draw over vapourisers permit the use of inhalation anaesthetic agents for this purpose.

Anaesthesiologist Called in the Middle of a Procedure

The need to convert sedation administered by non anesthesiologist into general anaesthesia in the middle of a procedure presents unpredictable response in an unprepared patient. Whenever possible, it is advisable to abort the procedure and later take up as a planned procedure after proper evaluation. However, emergency resuscitative measures and facilitating to complete a half way procedure may have to be undertaken with added risk. Before proceeding, a quick evaluation regarding fasting status, underlying medical disorders and the sedative drugs already administered has to be considered. Documentation of these facts and consent for anaesthesia has to be obtained before proceeding with.

Acute Pain Management

Anesthesiologist is primarily responsible for ensuring pain control throughout the perioperative period. This is achieved by use of various pharmacologic agents and specialized procedures best suited for the individual patient. Knowledge of these skills is extended to care patients with other acute painful conditions using pharmacologic and invasive modalities like epidural analgesia.

Chronic and Cancer Pain Management

Anesthesiologist's knowledge in pain management and regional anaesthetic blocks are often used in the care of chronic pain therapy for cancer and other chronic painful conditions. This involves pharmacotherapy and various regional blocks including neurolytic blocks. A multidisciplinary approach to pain medicine, with other medical specialists in the pain clinic will give a better result.

Obsteric Analgesia

The demand for epidural analgesia for labor and delivery has increased due to its safety and benefits. In addition to providing pain relief for the mother, the anesthesiologist is often involved in neonatal resuscitation too. In the event of an emergency cesarean section, the anesthesiologist provides surgical anesthesia, managing the vital functions of both the mother and baby.

Operating Room Administration

The continuous presence of anesthesiologists in the operating suite along with their association with surgeons, physicians and other staff makes him the apt person for leadership positions in operating room administration and management. In addition to patient care, the anesthesiologist is responsible for managing the resources of the operating suite, like efficient use of operating rooms, drugs, equipment and personnel.

Conclusion

Most anesthesiologists limit their practice to intraoperative care and immediate acute postoperative care in the postanaesthesia care unit. Skill of the anaesthesiologist, primarily gained through perioperative patient care, is now being utilized in diverse scenarios. This has provided new opportunities and challenges to the specialty with

emerging newer technologies and advancement in the medical field. The traditional scope of practice for anesthesiologists must be redefined and broadened to provide care throughout the entire perioperative continuum and beyond.

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